

**Danish Design Center “Made to Move” Seminar
Copenhagen, Denmark**

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Abstract

Integrated Human Test Facilities at NASA and the Role of Human Engineering

Integrated human test facilities are a key component of NASA’s Advanced Life Support Program (ALSP). Over the past several years, the ALSP has been developing such facilities to serve as a large-scale advanced life support and habitability test bed capable of supporting long-duration evaluations of integrated bioregenerative life support systems with human test crews. These facilities—targeted for evaluation of hypogravity compatible life support and habitability systems to be developed for use on planetary surfaces—are currently in the development stage at the Johnson Space Center. These major test facilities are comprised of a set of interconnected chambers with a sealed internal environment, which will be outfitted with systems capable of supporting test crews of four individuals for periods exceeding one year. The advanced technology systems to be tested will consist of both biological and physicochemical components and will perform all required crew life support and habitability functions. This presentation provides a description of the proposed test “missions” to be supported by these integrated human test facilities, the overall system architecture of the facilities, the current development status of the facilities, and the role that human design has played in the development of the facilities.